

FOUR VIEWS
of the
MUSIC DEPARTMENT
at the
UNIVERSITY OF CALIFORNIA,
SAN DIEGO

MUSIC DEPARTMENT

UCSD

by Wilbur Ogden

Chairman of the Department

Art institutions in America with occasional exceptions continue to exhibit a lack of constructive influence on our society as well as a posture of timidity in relation to the new and experimental. Yet there is beginning to emerge a belated but determined intent among progressive artists and educators to counter this culturally anachronistic stance.

Fortunately, there is also a growing realization on the part of our political leadership that the creative artist is essential to the reseeding of a healthy society. If the arts are to function effectively within the American cultural environment, additional possibilities for a more direct influence on society must be developed.

In an unpolemical way, the thrust of the music program at the University of California in San Diego recognizes the creative artist's peculiar view of life as expressed through his continuing search for new realities. The UCSD instruction program is based on the tacit assumption that any significant educational thrust must center itself on creative searching if cultural relevance and social influence are to be realized.

Today's world of electronic technology continues to provide the contemporary musician with stimulating resources for his creativeness (and so it does in UCSD's graduate and undergraduate programs of instruction) often on as casual a basis as did the piano within a now conventional music curriculum.

Of even greater influence on the UCSD instructional program, perhaps, is the condition of today's creative language. Its present non-hierarchical state, mainly the breakdown of its semantic postulates, allows the mixing of noise and musical sound and the mixing of media. This has stimulated into being methods of music learning that encourage creative

essays in sound among non-musicians and that insist on experimental studies related to their media among professional performers of music.

The present condition of music's creative language has unsophisticated the art to an extent that makes available to *everyman* musical uses of imagination and intuition, perception and judgment, and even a creative sensitivity to structural relationships. That availability, when fully realized, could modify *everyman's* present value priorities as well as his more anachronistic views of art in the world. It could impress upon *everyman* the social value of creativeness: if it would, we might dare hope for more constructive social and cultural environments.

When viewed *grosso modo*, this continuing confidence in artistic relevance is seen to inform the curriculum and practice of the University of California's music department in San Diego. Innovation is active, primarily at the graduate level of instruction where the M.A. and the Ph.D. degrees are offered, and also at the broadest level of instruction where the general student satisfies his college fine arts requirement.

Although the undergraduate music major at UCSD does participate in a progressive environment *per se*, his education tends to reflect the faculty's concern for developing in his traditional musical abilities and values. Beyond a considerable emphasis on the educational value of new music, beyond the casual integration of electronics as support for all music study, beyond specific instruction in music electronics and the availability of seminars in experimental theory and performance one must look to courses designed for the *general* student for evidence of radical innovation in the undergraduate curriculum.

II

Some four hundred University of California students, most of them freshmen, participate each year in the creative process as it relates to music. They improvise together, they construct tape pieces, they record the peculiarities of their environment, they devise notation systems, and they plan, rehearse, and present to their colleagues performances of sound structures of several minutes duration and of considerable complexity.

At various times, coinciding usually with campus performances, these students are called upon to attempt critical judgments of both the music and its performance, hopefully bringing into play the fruits of their own creative labors. They are also encouraged to develop the ability to hear more discriminately through a variety of controlled listening problems that isolate and bring to attention the elements and processes of music.

The tape recorder is near-omnipresent in these courses. It functions as an indispensable tool for critical review of one's own efforts, and it becomes an active music-making instrument in its own right. For example, the close-miking of marginally audible sounds allows the use of convenient but unorthodox sound sources such as paper or rubber bands. The overlaying of a recorded first improvisation with a second and third enlarges "the orchestra" and complicates the musical texture. Such projects can teach the student more about the musical process than one may expect from a music appreciation lecture or a textbook demonstration.

Like certain games employed with sensitivity training, musical improvisation enlivens personal and sensory interactions. When one participates in a musical group improvisation, one's imagination cannot run rampant at the expense of group interaction or of some aesthetic point of view collectively held. In this real-time process decisions are quickly made, musical propositions advanced and those of other individuals recognized and supported. A variety of social, aesthetic, psychological and physical responses continually interact, co-existing beyond the domain of verbal language.

Non-verbal improvisation exercises the rusty well-springs of personal and social responses while disengaged from role playing or the acting-out of real-life simulations. Musical improvisation places us in direct contact with the reality of our own biological, psychic and social instincts and rhythms. We learn quickly to adapt these in constructive, creative ways so as to more fruitfully interact with others in pursuit of common goals.

Within this particular educational framework at San Diego, improvising must lie outside the range of technically disciplined performance. Non-music majors are, of course, rarely performers with disciplined instrumental and vocal techniques. Anyway, habit and cliché too often turn up as bedfellows. Habits inculcated by efficient but narrowly functioning performance techniques will tend to inhibit imagination.

It is perhaps too early to assess the results of an approach that, in part, replaces music appreciation and, in part, moves beyond the study of formed music to offer *everyman* an opportunity to participate in the creative processes of both composer and performer. There is recurring evidence of broader influence as the purpose, methods and values of this approach are considered and applied to education in general. We do not doubt that sharpened perceptual abilities will result and that a heightened ability to perceive will increase understanding which in turn will increase enjoyment which, in turn will...?

San Diego's graduate music curriculum also reflects an orientation toward doing. Both M.A. and Ph.D. programs stress research projects that call for experiment or, at least, active laboratory involvements.

Let me describe one current research project leading to an M.A. thesis, a study of one of the less-known theoretical writings of Mexico's late Juan Carrillo. Not only does this study require an English translation from the researcher, but also the development of documentary recordings that allow comparisons of the composer-theoretician's different pitch systems. The research will include recordings of microtonally-tuned pianos found at the Carrillo Foundation in Mexico City as well as recorded demonstrations of a quarter-tone guitar built for the UCSD music department according to Carrillo's own specifications. This particular study, although perhaps more exotic than most M.A. thesis projects, is still typical of San Diego's stress on doing.

Group performance courses are very much a part of the graduate program. The weight of the performance repertory falls on the side of new music, perhaps one of the more distinctive features of the program. At San Diego, older twentieth century pieces like Cage's *Amores* or Bartok's *Sonata for Two Pianos and Percussions* are presented as normal concert fare rather than as isolated ventures into the current century.

A description of a major graduate performance project of last year might be informative at this point. Last February 9, the department presented for the Los Angeles Monday Evening Concerts a program originally performed to celebrate the opening of the new campus of UCSD's John Muir College. This concert began with a performance of *Integrales* by Varese, Thomas Nee conducting, proceeded to a performance of *Antiphony IV (Poised)* by Kenneth Gaburo for amplified flute, amplified string bass, trombone, and tape, and closed its first half with the performance of *Pacific Sirens* for a fairly large improvising ensemble. Its performers are called upon to meld their sounds with those of a carefully filtered tape of the Pacific surf prepared by the composer, Robert Erickson, Ichiyanagi's *Appearances*, for instruments modified electronically in real-time, opened the second half of this concert followed by Ernst Krenek's apotheosis to Anton Webern, *An Instant Remembered*, for eighteen instrumentalists, taped narration with string ensemble, and soprano soloist.

Such an ambitious program is not brought off unless participants are both intensely interested in and informed about new music. In this particular project John Silber was the indispensable man, performing trombone in all works except the Krenek (which he

conducted). But such a demanding program can be prepared only if a strong sense of group commitment is involved.¹

This particular concert required an intensive integration of electronics with live performance but it was not atypical of the department's routine performing activities. The integration of electronics (in some shape and size) is often required for the realization of the UCSD faculty compositions. This creative love affair with electronics on the part of San Diego's faculty composers obviously encourages students to try something of the same sort or to perform other live electronic music. It is not surprising that Ichiyanagi's *Appearances* has undergone two different productions in the same number of years at San Diego.

The graduate program at UCSD is avowedly experimental in orientation, so the department is prepared to take its occasional lumps when things go awry, as when a recent quarter's-end concert by the music electronics performance seminar sent its large and sympathetic audience muttering into the streets during and after a several-hour endurance contest which offered admittedly debatable accomplishments. But of course controversy and failure must be part of experimentation.

Electronics and performance problems often mix as investigative research as well as theater and concert activity in San Diego. Robert Erickson's seminars in *Timbre* and *New Instrumental Resources* provide some opportunities for investigating acoustical and contact miking, filtering and modulating, as well as for the documentary recording of new performing techniques. So do project seminars in electronics conducted by Professors Campbell, Gaburo, and Oliveros—and problem-oriented seminars such as that offered in notation by Roger Reynolds.

Often the concert hall becomes the laboratory, as cooperative virtuosi like string bassist Bertram Turetzky appear in the concert hall well-wired. Real-time electronic experiments in the concert hall remain most problematical and one seems well-advised to check with the composer to see if everything "got through." At San Diego it usually does, the high batting average speaking well for careful preparation and astute technicians—although these are always, as everywhere, in too-short supply.

1. I would not slight the amazingly intense level of student and faculty commitment to the rehearsal and performance of traditional literature. Anyway, UCSD's concert and chamber choruses, its four-year-old civic-university orchestras led by Thomas Nee, an exciting chamber orchestra newly formed by Raphael Druian, and a very active program of chamber music performance (open to all qualified students and coached by graduate and faculty staff) under the coordinating guidance of Bertram Turetzky, would not allow it.

IV.

UCSD's music program began in the fall of 1966 after the appointments of composers Robert Erickson and Will Ogdon, the latter as chairman of the department, and of conductor Daniel Lewis (now associated with USC). An added stimulus to that beginning was the appointment of Rosalyn Tureck, who continues to offer a Bach studies course while in residence one quarter each year.

It is prophetic to find a pilot course in creative music participation for non-majors being offered by Erickson and Ogdon in the spring quarter of that first year. This was accomplished with the glamorous support of Cathy Berberian, Leonard Stein, and Barney Childs (see 'A New Music Education for Everyman' by Will Ogdon, *Experiment and Innovations*, vol. 1, no. 1, Jan. 1968, University of California.) Group improvising and tape composing were introduced in that pilot course and these creative activities have remained a fundamental part of the learning process even in this fifth year of offering the course to UCSD freshmen.

The department's first graduate music students, three of them graduates from the University of Illinois, arrived in the fall of 1967. The habit of performing more new music than old began that year and has thrived in spite of both regular and sporadic invasions of well-known specialist performers of the older literature.

In the fall of 1967, John Silber, Thomas Nee (replacing Dan Lewis), James Campbell, and Pauline Oliveros joined the department. In 1968 Gaburo and Turetzky arrived and in 1969 Roger Reynolds was appointed to the faculty along with lectureship appointments in chamber music for Rafael Druian and Robert Turner.² The department's growth marked time in 1970 as political and economic vicissitudes rocked education in California. Whether UCSD's impeded growth will resume allowing the music faculty to enlarge in 1971 is an open question at the time of this writing.

The most basic early decision made by Erickson and Ogdon was to acquire electronic equipment on the highest priority basis. Although an Eastern-manufactured professional tape recorder was the first equipment purchase, Ampex 2 and 4 channel recorders have since graced the electronic studios complemented by Revox, Sony 777's and Beochords. Both Buchla and Moog synthesizers are on hand along with Dolby, Eltro and other sophisticated auxiliary equipment.

But five years later, these extensive holdings of electronic equipment seem less than adequate for a substantial number of faculty and 44 graduates pressing its use to the fullest. The building program of the University has ground to a virtual halt and the already-designed Mandeville Arts Center has been delayed to a 1973 occupancy. Unfortunately, substantial funds for equipment customarily accompany occupancy of a new building. The question of a source from which will come funds for badly-needed additions to equipment (and for replacements) until 1973 is perplexing, to say the least.

2. Incidentally, there is a new recording of a Reynolds piece: *Blind Men* on CRI. The piece is from 1966 — it doesn't reflect what he is into at the moment — but the sounds are Reynolds' sounds, and I find them beautiful. (It's choral/instrumental, not electronic.)

V.

In its projected, completed condition many years from now UCSD will equal the size of Berkeley and UCLA. The campus is being developed as twelve colleges and these are being grouped into clusters. The music department staff within the first cluster of colleges is tentatively projected as some 20 instructors, this first cluster program to be expressly related to the creating and making of music.

The Reagan years have cast long shadows over Clark Kerr's masterplan for the University of California and over many projected details of that plan, including UCSD's arts program. These uncertain times have tended to inhibit long-range viewing. It is not easy to avoid thinking of the first cluster's 20-man music staff as a totality with some kind of inclusive completeness.

How this view might compromise the present experimental thrust of the department is a provocative question. There are already varying demands on its instructional capacity: lecture courses for the colleges, musicianship training for the undergraduate music major, etc.

Faculty inclination favors an expanded experimental program of instruction and research. Such a program would embrace theater and mixed media, electronic and computer technology, performance practice, music communications, composition and improvisation, sociological and anthropological studies, and most certainly a heavy dose of performance, experimental and otherwise. Such an innovative program would function primarily at the graduate level. Only very limited manpower would be available for anything else.

It would seem logical, then, to expand the department's instructional resources, in the case of a UCSD growth pause after building a first cluster of colleges, so as to encompass *all* essential music instruction *beyond* such an innovative graduate program. Alternatives might include suppressing the more innovative potentials of the graduate program, in order to cover more conventional service relationships to the University, or disregarding the musical needs of the general university student in favor of a more comprehensive graduate program. Neither of these alternatives seem as attractive as increasing the ability of UCSD's music staff to accomplish both without sacrificing its collective will to chart new paths for the arts: new paths that hopefully will lead to social and cultural relevance in our time.

An aerial photograph of a coastal city, likely San Francisco, viewed from a high angle. A large, dark, winding structure, possibly a bridge or a large piece of driftwood, dominates the foreground. The city below is densely packed with buildings and streets, with a large body of water visible in the distance under a cloudy sky.

(Faculty) We've tried to reverse the usual ratio of new and old

(Students) was bombarded with so much new information
that I couldn't write for a year.

Cultural Traditions: Roger Reynolds

100 students; lectures and labs arrangement; we attended two lectures, 1½ – 2 hours each. The first dealt with two compositions by Yuasa which were played from tapes and were preceded and followed by a discussion of the fusion of Eastern and Western instrumental groups, form, proportion, and the sense of time. The second lecture was on art and architecture (with slides) for one hour. Then Mr. Reynolds isolated the music majors for a brief conference while the others rearranged the room. The second hour was a demonstration by a karate team, again followed by a brief discussion of proportion, space and time.

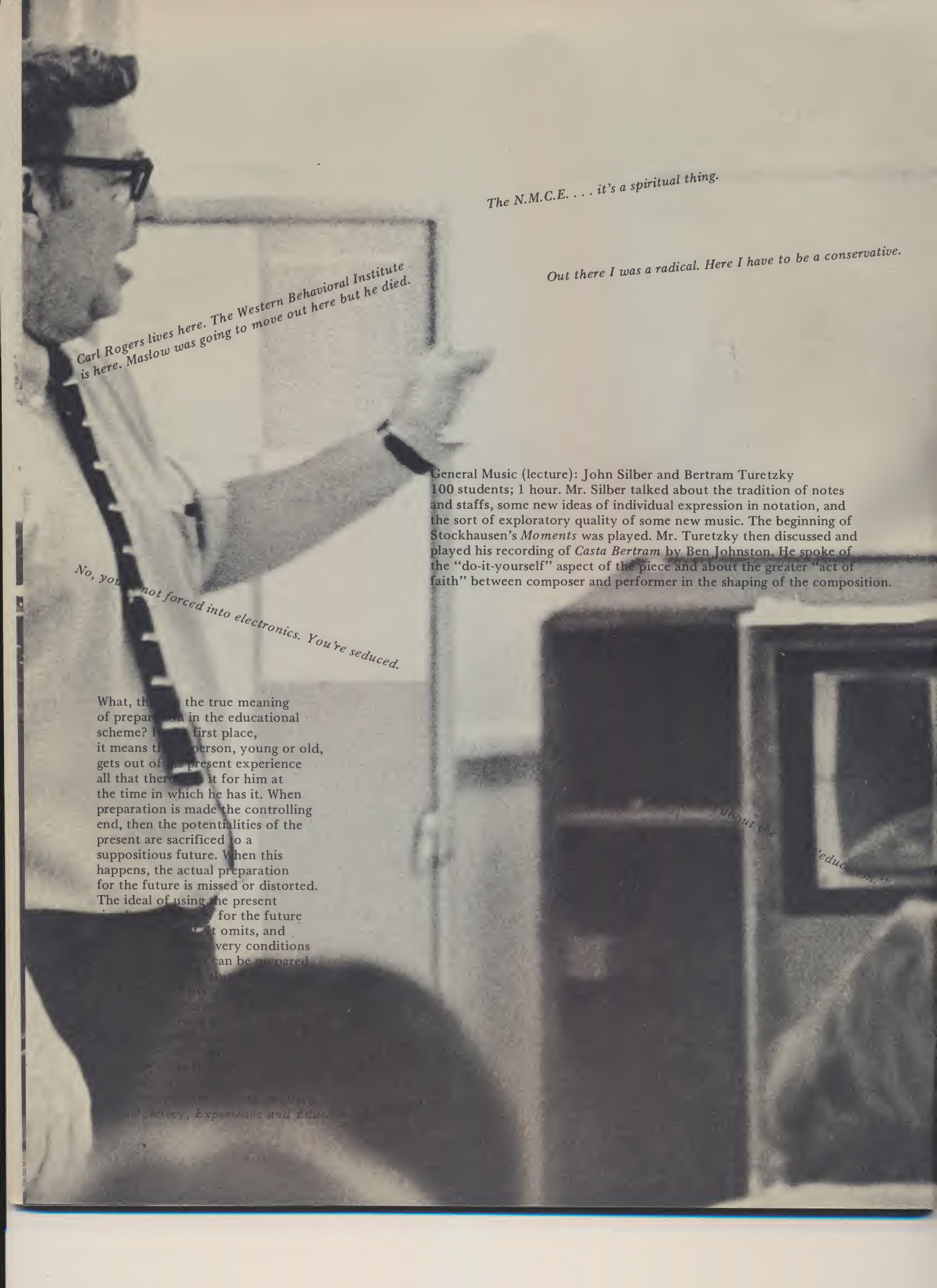
I once travelled a great distance to hear the allegedly great Wallingford Riegger speak. He came in, said a few words, then played records for the rest of the hour. It was years before I got the message.

It's important to give performers a sense of freedom – but keep a tight reign.

The only use of a knowledge of the past is to equip us for the present. No more deadly harm can be done to young minds than by depreciation of the present.
Alfred North Whitehead, *Aims of Education* (p. 3)

After Indiana, I feel liberated. It's great.

What we have now is a new frontier, a frontier for the full use of human beings. Perhaps I reveal my biases as a psychologist when I say that the cultivation of the frontier excites me far more than the prospects of exploring empty space.
Jerome S. Bruner, *Cultural Learning: Essays for the Left Hand* (p. 165)



The N.M.C.E. . . . it's a spiritual thing.

Carl Rogers lives here. The Western Behavioral Institute is here. Maslow was going to move out here but he died.

Out there I was a radical. Here I have to be a conservative.

General Music (lecture): John Silber and Bertram Turetzky
100 students; 1 hour. Mr. Silber talked about the tradition of notes and staves, some new ideas of individual expression in notation, and the sort of exploratory quality of some new music. The beginning of Stockhausen's *Moments* was played. Mr. Turetzky then discussed and played his recording of *Casta Bertram* by Ben Johnston. He spoke of the "do-it-yourself" aspect of the piece and about the greater "act of faith" between composer and performer in the shaping of the composition.

No, you're not forced into electronics. You're seduced.

What, then, is the true meaning of preparation in the educational scheme? In the first place, it means that a person, young or old, gets out of his present experience all that there is for him at the time in which he has it. When preparation is made the controlling end, then the potentialities of the present are sacrificed to a suppositious future. When this happens, the actual preparation for the future is missed or distorted. The ideal of using the present

for the future
it omits, and
very conditions
can be prepared

*... about the
'education' ...*

... agency, Experience and Educ.

It is a matter of the greatest urgency
that our educational institutions realize
that we now have a choice among these
environments of at least one that is more
than the printed word. The new
digital strings are filled with
information for the "outside" world
and new information media.
Just shy from instruction,
the language of symbols to discovery —
and exploration and to the
language of forms.

Luhan, *The Medium is the Massage* (p. 100)

*I was in an experimental college business for a while.
I felt like a sop. I got out after one year.*

I don't listen to music much anymore. I listen to sounds.

*California gave all state employees a cost of living raise
except university teachers. Our budget was just cut.*

Seminar on Timbre: Robert Erickson

A class of 28 was split to meet as two similar classes of 14 — each for one three-hour session a week. The beginning of the class was spent discussing the week's readings. (Mr. Erickson's reading list appears on pp. 28 and 29.) There was much general questioning of the conclusions, and the students were urged to listen to Mr. Erickson's dubs of the tapes the psychologists had used in their experiments. The remainder of the time was spent listening to and discussing tapes the students had prepared. The assignment had dealt with recording acoustical instruments and altering the attacks by splicing or by processing the sounds through a synthesizer. The discussion centered around the influence of attacks on our perception of timbre.

I'll play pressure ball, but I want to be paid for it.

Hey... that's avant garde!

We saw four rehearsals: Tom Nee and Roger Reynolds each rehearsing Reynolds' *Emperor of Ice Cream*, Pauline Oliveros rehearsing Terry Riley's *In C*, and Rafael Druian rehearsing Webern's *Five Movements for String Orchestra*, Opus 5.

*Who knows what the hell we're going to need to survive out there.
The old training doesn't seem to be working any more.*

*There's a sort of hysteria about the place.
There's no time to contemplate your navel.*

Circuitry Class: Pauline Oliveros
10 students; 1 hour. Basically
a lecture on soldering.
Practical tips documented
with references to physics.

Why don't you guys just write about circuits and forget the rest?

*Just go downtown La Jolla and ask them
what they think of the university.*

Only on rare occasions do the worlds of art and science merge. This happened during the Renaissance and again in the late nineteenth and early twentieth centuries when the French Impressionists studied the physics of light. We may now be approaching such a period again.

Edward T. Hall, *The Silent Language* (p. 75)

Senior Theory:

7 students; 1 hour. Mostly a general discussion of the nature of data collecting versus the application of that data to approach an understanding of function. References made by Mr. Gaburo to recent articles in psychology and psychoacoustics. No music was heard, but there was an exercise in which the entire class scanned a Mozart excerpt in real-time and then attempted to answer questions without looking again.

Electronic music has had its heyday.

the resources he (the teacher) supplies — a book, space to work, an opportunity for observation of an industrial process, a lecture, a picture, graph or map, his own emotional reactions to what these were, and would hope they would be perceived as, useful to the student. He would not feel free to issue commands, or impositions or requirements. He would use other resources he could discover, for use in his teaching. Carl R. Rogers, *On Becoming a Person* (p. 138)

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g give

We may be able to come up with a theory that will apply to all music.

I'm not sure I've had to kind of stifle the questions.

in our case, in the world, in the future, we have to have to find a quite consistent and systematic way. The kind of pluralism that doesn't lead us toward pluralism in some cases, may move us away from it. John W. Gardner, *No Easy Victories* (p. 138)

A man who only knows his own science, as a routine peculiar to his science, does not even know that. He has no fertility of thought, no power of quickly seizing the bearing of alien ideas. He will discover nothing, and be fruitful in practical applications.

Alfred North Whitehead, *Aims of Education*

None of the faculty is very sympathetic to rock.

Faculty Seminar

About 40 people present; 2 hours or so. The seminar was called by Roger Reynolds after a discussion with grad student Bruce Rittenbach. Both were involved in building and investigating sound moving devices. The purpose of the seminar was to pool faculty and student information.

Allen Strange (grad) demonstrated a working model of the light-controlled mixer designed by Frederic Rzewski (discussed in *Electronic Music Review*, No. 4), Vladimir Vooss (grad) demonstrated a five-channel, light-controlled mixer. Pauline Gliceros discussed her project dealing with an x-y-z axis mixer.

John Mizelle (grad) described a 100 channel, digitally-controlled sound tunnel built for the L.A. Municipal Arts Department and a new 16 x 16 VC mixing matrix with logic derived from people moving in the environment.

The second device is now being built under the same auspices for a COLA exhibition opening soon.

Roger Reynolds described a 6-channel VC sound moving device which was manually controlled and had memory. Bruce Rittenbach (grad) talked of four factors which would, perhaps, have to be considered in building a truly versatile sound moving device: amplitude, phase-angle, Doppler-shift, and reverberation.

I think those of you who are designing your own art are a lot more interested in the music than we are.

There's so much more to the faculty — it's not just a question for the students, not just a question to arrest the motion and write a piece.

Concert: Theater Pieces (by grad students Charles Buel, Frank McCarty and Allen Strange)
 A very attentive, over-flow audience (2-3 00 or so). All pieces required theatrical as well as musical abilities from the performers. Good performers. Two of the pieces were conventional in the sense that they were procenium presentations, with the audience seated in rows watching silently. Between them they involved colored lights, slide and movie projections, music on a revolving table, a prepared piano, and a little playlet in which a flutist and a clarinetist spoke their lines through their instruments. The first piece had the audience seated on the floor as instrumentalists, singers and candle-holders (the room darkened) moved about the room. There were microphones in various positions into which the players occasionally played; their sound was then modified by Buchla equipment and appeared from speakers around the room. A few of the audience were silently enticed to help carry some branches which made delicious rustling sounds. All pieces involved nicely integrated, prepared tapes.

C.R.M.

One day a girl ran out. She said she had to get back to playing her instrument again. But that's O.K. too.

I like it, it's sentimental.





reflections after La Jolla.....

Someone once observed that twentieth-century man lives to some extent in the future and to him, everything seems possible. Programmed-learning devices, cassette tapes and the like are already in use for teaching musical fundamentals, and many of us look forward to that perhaps-not-so-mythical union of something like Piaget, Skinner, Norbert Weiner and Carl Rogers which will produce potent, gentle, omniscient, flexible, computer-controlled environments for learning; environments which can assure a certain homogeneity and competence to all people while leaving the widest possible latitude for individual differences; environments which will provide an assured course for both teacher and student without stifling anyone's creative abilities. At the very least, some are now demanding that institutionalized education be made relevant to the present and that it inculcate value systems which will better suit the world in which we all must live.

All this expectation with the science of education, computers and cybernetics less than 50 years old! All this expectation now, when it was only within the last ten years or so that some of us late-comers faced up to the music of other cultures, the music of the counter-culture, Cage, Stockhausen, Terry Riley, etc., and realized the inherent provincialism of our systems. All this expectation when the musics to be embraced have never been so different, and when the crowding of universities is forcing many of them to give up almost any pretense of dealing with individual people. At any rate...

La Jolla has a relatively small department with an impressive and remarkably diverse faculty.¹ They have attracted some very bright energetic graduate students and, perhaps partly because they collaborate in their teaching, they offer survey courses of a caliber few state universities could match.

Concerning the use of synthesizers, almost everybody we met seemed to have a good practical knowledge of the Buchla and the Moog. (They are in use constantly.) But we heard only one piece made entirely on a synthesizer (composed wholly of difference-tones). The department appears rather to stress the use of synthesizers as peripheral resources. They are used a great deal for modifying prerecorded material, for modification during live-performance, and for experiments like those described for the timbre class.

Concerning education, we visited only a small sampling of classroom situations, but a few generalizations seem reasonable. For one thing, we saw no example of a closed system being given to the students; no part-writing rules, no "historically correct" performance practices, no forced immersion in a prescribed literature, and virtually no value judgments at all other than positive reinforcements to students. Granted, we saw only a few classes. (We were told that part-writing is offered to upper division students as an historical study.)

Perhaps another generalization which might be made is that we saw very little discussion of music simply as music (that is, divorced from other considerations). Roger Reynolds did a brief formal analysis of two pieces by Yuasa but this came in the

1. Harry Partch is no longer on their faculty. He still lives in the area, but we were told he is not particularly accessible. (Robert Erickson very much is, though, and he has also been heavily into the design and construction of acoustical instruments.)

context of an on-going contemplation of the Japanese mind.² We heard Robert Erickson discussing psychological research on the perception of timbre. We saw labs for general music in which sounds were used for a sort of sensitivity training. The lectures for general music contained a lot of music (from records) but the talk was more about the interrelations between people than about the music itself. We saw Kenneth Gaburo contemplating with a class what it means to speak of or to perceive musical structure. And there was something I found wonderful in the situation of a musician (Pauline Oliveros) in a music school teaching soldering to a group of musicians.

One thing which surprised us a bit was the absence of any programmed-learning arrangement. Perhaps this is because the undergraduate program is relatively new. Perhaps there are faculty members who feel it is mechanical head-stuffing, or simply irrelevant. But with their curriculum extraordinarily weighted with new music, and with a few of the faculty expressing the concern that some of their students are quite deficient in basics, I would think that just having some individual study tapes around might alleviate a little of the pressure. We were told that there is much discussion and disagreement concerning how to handle the undergraduate program. Who knows what it will be like next year? I found it consoling, though, to see people as bright as they are very concerned and a bit puzzled (at least divided).

And it is interesting, perhaps, that it seems to be here—with the training of aspiring young musicians

—that things seem most problematic. I think La Jolla is no exception in that. Right where we should be able to lavish the most care, things seem least adequate, the time too short, the work to be done too great, our vision of what they ought to be perhaps too clear, the gap between the educational cant of the 60's and our deeply ingrained fears of superficiality (each from our own narrowed point of view) too great, etc., etc. From the graduate students we met at La Jolla, our guess is that when (if) they become teachers, they may feel less responsibility to the past than many of us do at the moment. They seemed remarkably open and responsive. Perhaps they will be in a better position to create a situation in which they can be comfortable, to see more ways of creating loosely structured but conspicuously fruitful environments. Perhaps. But the disagreement and the occasionally conspicuous discomfort are perhaps truer measures of how far the world is from any computer/cybernetic solution.

At any rate, I have been away from academia now for one year, and I think the year has considerably aggravated my allergy to large classes. I may even be developing an allergy to schools in general. I occasionally hear vague rumors that there are institutionalized music schools (even good-sized ones) where they are minimizing mass lectures and somehow finding it possible to teach students as individuals, one-to-one, helping them pursue their own individual goals. I can't speak for the readers, but the editors of *SYNTHESIS* would be interested in hearing some facts about the time and costs involved and how those of you who are into it feel about it.

W. A. J.

2. Yugi Takahashi visits the department for three weeks in February as Regents Lecturer to perform in public and in workshop sessions the problematical music for piano and other instruments. Past lecturers were Partch, Krenek, Castiglioni, Reynolds, Leonard Stein, Childs and the Australian, Keith Humble.

THE

ARTIST

john silber

robert erickson

rafael druian

kenneth gaburo

james campbell

roger reynolds

thomas nee

pauline oliveros

bertram turetzky

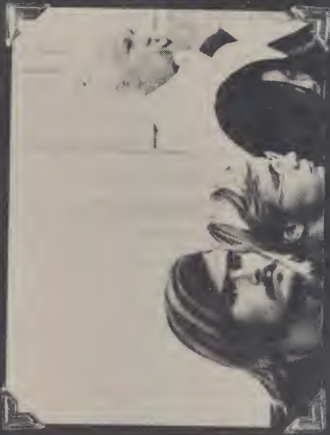
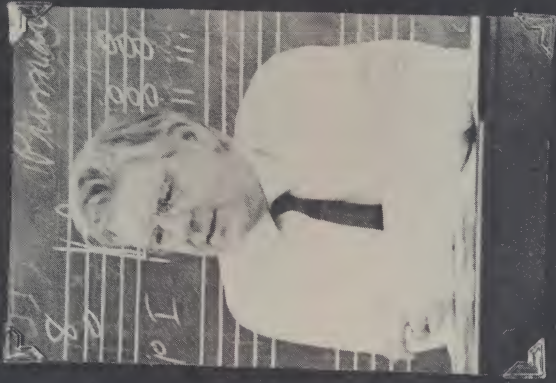
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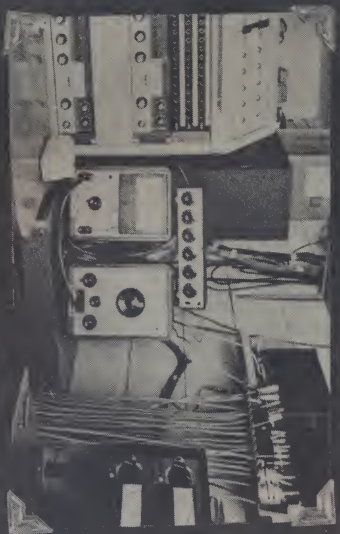
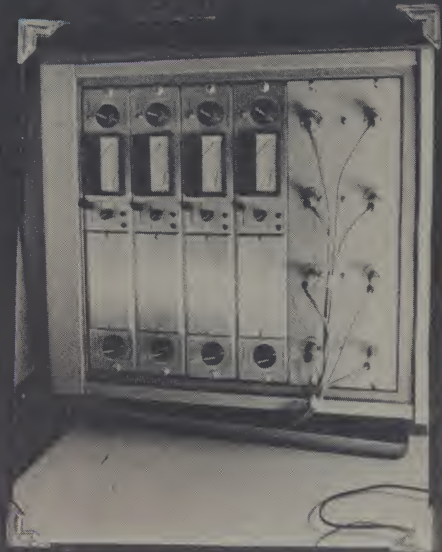
La Jolla, Calif

(also rosalyn tureck, not shown)

h. r.







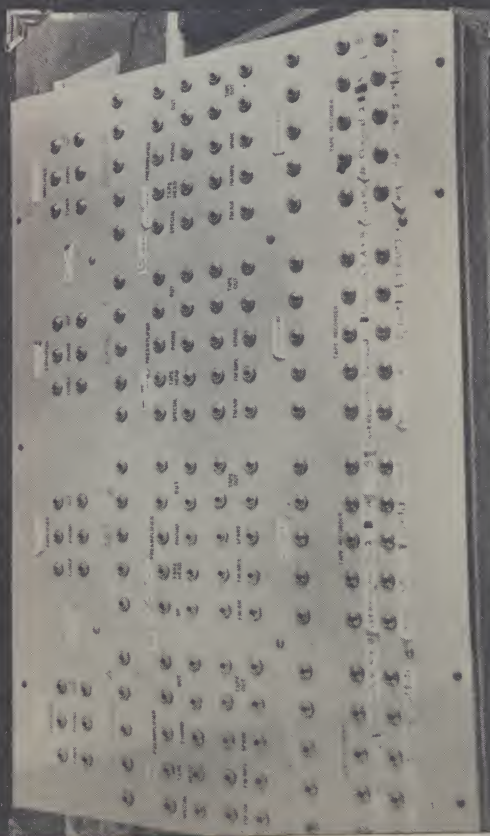


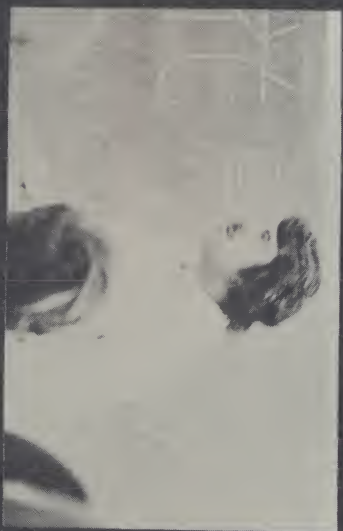
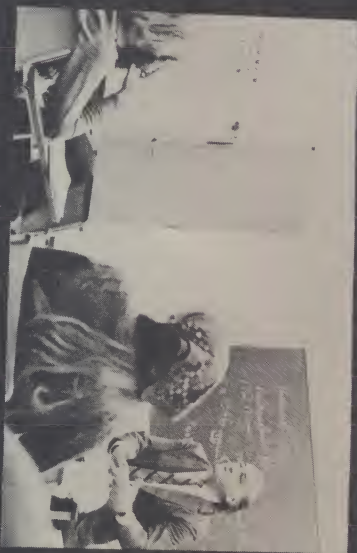
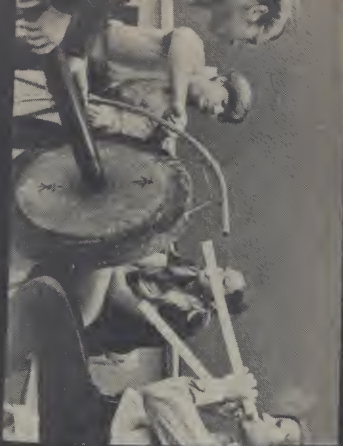
AS THE REQUEST FOR ACCESS TO JG AT 2:00 P.M. THE WEEK BEFORE A
REPLY TO THE REQUEST FOR ACCESS TO JG WILL BE PROVIDED WITHIN
THIRTY DAYS AND QUINCY 2005 WILL BE PROVIDED WITHIN
THIRTY DAYS AT WHICH TIME ACCESS WILL BE GIVEN TO THE
APPLICABLE CONDITIONS.

THOSE OF YOU WHO HAVE RESERVED TIME IN THOSE AREAS ARE TO SUBMIT REQUESTS FOR USE OF THE AREA YOU DESIRED, THOSE OF YOU NOT HAVING REQUESTED TIME IN THOSE AREAS BUT USING THE EQUIPMENT IN THE RESERVED TIME IN THOSE AREAS ARE URGED TO CEASE USING THEM UNTIL A REQUEST FROM YOU HAS BEEN RECEIVED AND ACTED ON. ALL REQUESTS SHOULD BE RECEIVED IN MY MAIL BOX BEFORE 5:00 P.M. THIS FRIDAY.

THERE ARE SEVERAL REASONS FOR SUCH ACTION. SOME OF THEM ARE: 1). PERSONS HAVE BEEN OBSERVED IN THOSE AREAS WHO ARE NOT AUTHORIZED TO BE THERE (OUTSIDERS); 2). WE ARE CONCERNED ABOUT MAKING AN UNEQUITABLE RESERVED TIME ALLOTMENTS FOR WHICH A POLICY IS NOW BEING CONSULTED; and, 3). THE AREAS ARE, AT TIMES, BEING USED FOR PRODUCTS OTHER THAN FOR WHAT THE AREAS ARE INTENDED. WE HOPE THIS ACTION WILL NOT INCURVENCE YOU TOO MUCH BUT IT DOES HAVE TO BE DONE.

FOR THE DEPARTMENT:
James L. Campbell
James L. Campbell
Coordinating Consultant





LA JOLLA EQUIPMENT LIST

Tape Recorders

- 2 Ampex AG-440-4's
- 2 " AG-440-2's
- 1 " AG-350-2
(with variable speed control)
- 1 " 360-2 tape transport
- 6 Beocord 2000's
- 1 Nagra portable
- 2 Revox G-36's
- 4 Revox A-77's
- 1 Tapesonic
- 2 Sony 777-2's
- 13 Viking playback decks

Microphones

- 1 Altec condenser
- 6 Electro-Voice 666 dynamics
- 1 Neumann SM-69 stereo
- 4 Sennheizer 405 condensers
- 2 Neumann U-64 condensers
- 1 Shure Unidyne dynamic

Turntables

- 1 Garrard Lab 80
- 1 KLH stereo
- 3 Thorens TD 150 stereos
- 1 " TD 124 stereo

Amplifiers

- 2 Concertone amp/speaker combinations
- 4 Dynakit Mark III amps
- 2 Langevin AM50 monitor amps
- 1 Marantz 15 stereo amps
- 2 McIntosh 275 stereo amps
- 13 Shure pre-amps
- 2 " Solophone Headset amps
- 1 " Pro Stereo transcription pre-amp
- 2 Sony 1120 stereo integrated amps

Speaker Systems

- 4 Acoustic-Research AR3 systems
- 1 " " AR4 system
- 2 Altec 843D systems
- 8 " A7-500 systems
- 2 Wharfedale miniature systems

Mixing Equipment

- 1 Ampex MX-10 microphone/line mixer
- 1 Nagra BM " " "
- 2 Langevin " " mixers
- 1 Dynakit PA52 stereo control center
- 1 Marantz 7A " " "
- 1 McIntosh C-22 " " "

Headphones

- 13 Sharpe headphones
- 1 Beyer headphone
- 2 Koss Pro 4A Headphones

Synthesizing Equipment and Accessories

- 1 Moog III Synthesizer
- 1 Buchla System(C.B.S.)-4 super modules
- 1 Bode frequency shifter
- 1 " ring modulator
- 1 Communications Labs variable-frequency power supply
- 1 Dolby noise reduction system
- 1 Electro rate/information changer
- 1 Fairchild reverberatron
- 1 General Radio "random noise" generator
- 1 Hewlett-Packard frequency oscillator
- 1 Langevin rotary filter
- 1 special matrix box
- 1 Universal Equalizer EQ 1000

Tape Degausser

- 1 Ampex degausser
- 2 Cinema degaussers in steel cabinets

Test Equipment

- 2 Hewlett-Packard VTVM's
- 1 " " AC-DC VTVM
- 1 " " frequency oscillator
- 1 Tectronix oscilloscope
- 1 " " camera
- 1 Claricon VOM

COURSE OFFERINGS OF THE MUSIC

DEPARTMENT AT UCSD

LOWER DIVISION

1A-1B-1C. The Nature of Music F-W-S
Development of music perception and discrimination through participation projects in tape music composition and small-group improvisation, and through critical observation of the preparation and performance of selected ensemble literature by experienced musicians. Prerequisites: 1A for 1B; 1B for 1C; or consent of the course committee.

2A-2B. Music Fundamentals F-W
An introduction to music symbols and their meaning. Practice in elementary pitch recognition, simple rhythmic relationships, intensity, timbre, and density discriminations. Prerequisites: 2A for 2B; or proficiency certified by course committee.

10. Projects and Studies in Music F
A study of the nature of music, how it is made, how to listen to it. Projects include improvising in groups, tape music composition, and invention of music notation. Old, new, and newest music will be listened to and studied. This course may be used in satisfying the Revelle College fine arts requirement.

30A-30B-30C. Seminar in Chamber Music Performance I (2-2-2) F,W,S
Performance of representative chamber music literature. Prerequisite: proficiency on a musical instrument and consent of the instructor through audition. (Course may be repeated for credit.)

UPPER DIVISION

100A-100B-100C-100D. Basic Musicianship S-F-W-S
An integrated four-course sequence in music skills including aural discrimination, music reading, basic conducting, music acoustics and rudimentary harmonic theory. Prerequisites: Music 2A and 2B, or proficiency by examination.

101A-101B-101C. Music Theory and Practice F-W-S
(Theoretical Studies) Integrated studies in music theory, composition and styles study through analysis and performance. Must be taken in sequence. Prerequisite: Music 3 or consent of the instructor.

102A-102B-102C. Advanced Music Theory and Practice F-W-S
(Theoretical Studies) Advanced integrated studies in music theory, composition and styles study through analysis and performance. Must be taken in sequence. Prerequisite: Music 101C or equivalent certified proficiency.

103. Seminar in Composition F-W-S
(Composition) Individual projects in composition critically reviewed in seminar with fellow student and faculty composers. Three consecutive quarters are equivalent to one undergraduate course. Students enroll in the fall and receive a grade at the end of the spring quarter. Prerequisites: Music 101A-101B-101C, or permission of the Department.

104A. Principles of Electroacoustic Transmission of Music Information F
(Theoretical Studies) A study, involving electroacoustic principles, of the transmission of musical information. Operational techniques of microphones, amplifiers, magnetic-tape recorders, loudspeakers, and broadcast and recording facilities will be discussed. Three meetings. Prerequisite: consent of instructor.

104B. Projects in Electroacoustic Transmission of Music Information W
(Performance and Technology) An investigation into the experimental use of electronic instruments relating to the storing and retrieving of aural information and applied to the multi-varying conditions caused by complex sound events. Three meetings. Prerequisite: Music 104A.

105A. Electronics in Music W
(Theoretical Studies) Exercises in electronic-sound generation and processing, with emphasis on voltage-controlled systems. Prerequisite: Music 104A.

105B. Projects Seminar in Electronics in Music Performance S
(Theoretical Studies) Three meetings per week. Prerequisite: Music 105A.

106A-106B-106C. Experimental Studies Seminars F-W-S
(Experimental Studies) Individual and Group problems in experimental studies. Seminar topics determined according to present research interest of faculty member directing the course. An elective for qualified undergraduates. Prerequisite: consent of instructor.

108A-108B. Studies in New Instrumental Resources F-W
(Experimental Studies) Extensions of conventional instrumental technique and tone production, and their application to music composition, notation and performance. Must be taken in sequence or may be taken separately with instructor's consent. An elective for qualified undergraduates.

112. Studies in Vocal and Choral Literature F
(Literature and Special Studies) A critical study of representative works for solo voice (with piano or other accompaniment) and/or for choral ensemble. Since the selected literature will vary from year to year the course can be repeated for elective credit. Music majors are required to take additional projects seminar session for course credit.

113. Studies in Opera F
(Literature and Special Studies) A critical study of representative operas. At least one opera discussed will be selected because of the opportunity to see it in staged performance. Music majors are required to take an additional projects seminar for course credit.

114. Music of the Twentieth Century F
(Literature and Special Studies) An exploration of materials and methods used in the music of our time. Music majors are required to take an additional projects seminar session for course credit.

115. Seminar in Bach Studies W
(Literature and Special Studies) A study of the art of J. S. Bach, with particular attention to problems of style and structure. Music majors are required to take an additional projects seminar session for course credit. Prerequisite: ability to read music or consent of the instructor.

116. Seminar in Medieval and Early Renaissance Music S
(Literature and Special Studies) The development of an operational and intellectual account of medieval and early Renaissance music. Music majors are required to take an additional projects seminar session for course credit.

117. Seminar in Late Renaissance and Early Baroque Music W
(Literature and Special Studies) Functional performance problems and realizations of music of the sixteenth and seventeenth centuries. Music majors are required to take an additional projects seminar session for course credit.

120A-120B. Audio Circuitry for Musicians (2-2) F-W
(Performance and Technology) AC and DC circuit analysis; soldering and assembly techniques; projects. A prerequisite course for Music 202. Two units each quarter.

123. The Orchestra and its Literature S
(Literature and Special Studies) A study of the instruments of the orchestra: their resources, tonal effects; their use by major composers; methods of writing for modern instruments; analysis of representative scores. Music majors are required to take an additional projects seminar session for course credit. Three meetings. Prerequisite: ability to read music.

124. Studies in Chamber Music S
(Literature and Special Studies) A critical study of representative works for small ensemble. The literature studied is selected and may vary from course to course. The course can be repeated for elective credit. Music majors are required to take an additional projects seminar session for course credit. Three meetings.

128. Principles and Practice of Conducting F
(Performance and Technology) The theory and practice of conducting as related to the study of instrumental and choral literature. Prerequisite: consent of the instructor.

130A-130B-130C. Seminar in Chamber Music Performance (2-2-2) F-W-S
(Performance and Technology) Performance of representative chamber music literature. Prerequisites: proficiency on a musical instrument and consent of the instructor through audition. (Course may be repeated for credit.)

131. Projects Course in Chamber Music Performance (0-0-4) F-W-S
(Performance and Technology) Individual projects in the preparation of chamber music for performance. Three consecutive quarters are equivalent to one undergraduate course. Students enroll in the fall and receive a grade at the end of the spring quarter.

- 135. Concert Orchestra (2-2-2)** F-W-S
(Performance and Technology) Activity. Study and performance of orchestral literature. Course may be repeated for credit. Prerequisite: consent of the instructor by audition.
- 136. Reading Orchestra (2-2-2)** F-W-S
(Performance and Technology) Activity. Study of standard orchestral literature in coached rehearsal sessions. Course may be repeated for credit. Prerequisite: consent of the instructor by audition.
- 140. Concert Chorus (2-2-2)** F-W-S
(Performance and Technology) Activity. Study and performance of choral literature. Course may be repeated for credit. Prerequisite: consent of the instructor by audition.
- 141. Chamber Chorus (2-2-2)** F-W-S
(Performance and Technology) Activity. Study and performance of literature for small choral ensemble. Course may be repeated for credit. Prerequisite: consent of the instructor by audition.
- 197. Comprehensive Seminar for Senior Majors (0-0-4)** F-W-S
(Literature and Special Studies) A one-hour seminar during which undergraduate learning experiences within the major are reviewed and correlated.
- 198. Departmental Seminar for Music Majors** F-W-S
(No Category) A departmental requirement for all music majors, this course provides a forum for visiting lecturers and faculty to share current research and new ideas with the undergraduate major. This course also provides for an exchange of ideas and accomplishments within the departmental student body. One meeting per week.
- 199. Independent Study (2 or 4)** F-W-S
(All Categories) Independent reading, research, or creative work under the direction of a faculty member. Prerequisites: consent of the instructor and departmental approval.

GRADUATE

- 201A-201B-201C. Advanced Problems and Projects in Conducting and Performance (0-3, 0-3, 0-3)**
(Performance and Technology) The general nature of this course conforms to the category it serves. Specific content is determined from year to year. (Satisfactory/Unsatisfactory grades permitted.)
- 202. Problems and Projects in the Specialized Use of Electronics in Performance (3)**
(Performance and Technology)
- 203A-203B-203C. Advanced Projects in Composition (3,3,3)**
(Composition) Satisfactory/Unsatisfactory grades permitted.
- 204. Projects Seminar in Electroacoustic Transmission of Music Information (3)**
(Performance and Technology) Prerequisite: Music 104A.
- 205. Advanced Use of Electronics in Music (3)**
(Theoretical Studies) Seminar in advanced theoretical and applied research in the generation and processing of sound by means of voltage-controlled systems for the composition of electronic music. Prerequisites: Music 104A, 105A or equivalent.
- 206A-206B-206C. Experimental Studies Seminars (3,3,3)**
(Experimental Studies) Seminars offered by faculty within areas of present research interests, such as: timbre, compositional linguistics, time perception in aesthetic situations, psychoacoustics, socio-musical studies, time and motion.
- 207A-207B-207C. Theoretical Studies Seminar (3,3,3)**
(Theoretical Studies) Seminars offered by faculty within areas of present research interests, such as: structural analysis, notation, twentieth century music systems, contemporary structural analysis, tuning and temperament, instrumentation.
- 208A-208B. Seminar in New Instrumental Resources (3,3)**
(Experimental Studies) Extensions of conventional instrumental technique and tone production, and their application to music composition, notation and performance. Must be taken in sequence or may be taken separately with instructor's consent.
- 212. Seminar in Vocal and Choral Literature (3)**
(Literature and Special Studies) A critical and historical study of selected works and repertory.
- 213. Opera Studies (3)**
(Literature and Special Studies) A detailed analytical study of selected operas in production in San Diego, Los Angeles, or San Francisco.
- 214. Seminar in Twentieth-Century Music (3)**
(Literature and Special Studies) Detailed study of selected literature through the study of scores and writings, supplemented when possible by performance participation.
- 215. Seminar in Bach and Related Studies (3)**
(Literature and Special Studies) A study of content and structure in selected compositions of J. S. Bach. Prerequisite: consent of the instructor.
- 216. Seminar Studies in Late-Medieval and Early-Renaissance Music (3)**
(Literature and Special Studies) Problems of style and performance in selected music of the thirteenth, fourteenth, and fifteenth centuries.
- 217. Seminar Studies in Late-Renaissance and Early-Baroque Music (3)**
(Literature and Special Studies) The study of early music as it has to do with theoretical systems, critical analyses, music and documentary source materials.
- 223. Seminar Studies in Orchestral Literature (3)**
(Literature and Special Studies) Problems of performance and interpretation in representative works of orchestral music, including works for chamber orchestra, opera scenes, and choral works. Students will be responsible for problems of editing, bowings, and conducting.
- 224. Seminar Studies in Chamber Literature (3)**
(Literature and Special Studies) A critical and historical study of selected works and repertory.
- 230. Advanced Seminar in Performance of Music for Small Ensemble (3)**
(Performance and Technology) Performance of representative chamber music literature through coached rehearsal and seminar studies. (Course may be repeated for credit since literature studied varies from quarter to quarter.)
- 296. Graduate Teaching Seminar (1,1,1)**
(Experimental Studies) Discussion and demonstration of course content and methods for graduate student teachers in undergraduate courses given or participated in by the Department of Music. May be repeated for credit.
- 297. Candidates Tutorial (1,1,1)**
(Literature and Special Studies) A course requirement for all prospective M.A. and Ph.D. candidates, the tutorial is taken with the student's graduate advisor and provides for supervised independent remedial music studies and guided preparation for thesis research. Students are to enroll for three quarters for a total of three units.
- 298. Departmental Seminar (1,1,1)**
(No Category) A departmental requirement for all music graduate fellows, this course provides a forum for visiting lecturers and faculty to share current research and new ideas with the graduate fellow. It also provides for an exchange of ideas and accomplishments within the departmental student body. (Satisfactory/Unsatisfactory grades only.)
- 299. Advanced Research Projects and Independent Study (1-12, 1-12, 1-12)**
(All Categories) Satisfactory/Unsatisfactory grades permitted.
- 500. Apprentice Teaching (1-4)**
(No Category) Participation in the undergraduate teaching program is required of all graduate students in partial fulfillment of the requirement for an advanced degree. A minimum teaching requirement of three quarters at 25% time is set and assigned at the discretion of the department. (Satisfactory/Unsatisfactory grades only.)

TIMBRE SEMINAR: R. ERICKSON: READINGS

I. GENERAL

- The perception of Timbre, J. F. Schouten, 6th Int Cong Acoust. Report, Tokyo, 1968, pp 89, 35-44
The Physical Correlates of Timbre, James C. Tenney, Gravesaner Blätter. Vol 7, Heft 26, pp 106-109
Pitch, Timbre and Hearing Theory, R. Plomp, Int. Audiol. 7: 1968, pp 322-344
The Analytic Capacity of the Cochlea, Juergen Tonndorf, from Sensorineural Hearing Processes and Disorders, A. Bruce Graham, ed., Little Brown 1967, pp 37-48
The Perception of Speech, G.A. Miller, from Language and Communication, McGraw Hill, 1951, pp 47-58
Frequency Analysis, from Signal Detection Theory and Psychophysics, Green and Swets, 1966, pp 276-295
The Ear As a Measuring Instrument, Harvey Fletcher, JAES 17 No. 5, Oct 1969, 532-4
Psychoacoustics, Applied and Misapplied, Burris-Meyer and Mallory, JASA 32 No. 12, Dec 1960, 1568-74

II. ATTACKS

- A Note on Time Relationships, P. Schaeffer, Gravesaner Blätter, 41-77 PLUS TAPE OF MUSICAL EXAMPLES
Timbre Cues and Instrument Identification, Saldanha and Corso, JASA 1964, 2021-26
Auditory Perception of Temporal Order, I. Hirsh, JASA 31, No. 6, June 1959, 759-67
Preliminary Experiment On the Aural Significance of Parts of Tones Of Orchestral Instruments and On Choral Tone, Clark, Luce et al, JAES 11 No. 1, Jan 1963, 45-54 (Read only the section devoted to attacks)
Durations of Attack Transients of Non-Percussive Orchestra Instruments, Luce and Clark, JAES 13 No. 3, July 1965, 194-99
A Computer System for Time-Variant Harmonic Analysis and Synthesis of Musical Tones, James W. Beauchamp, from Music By Computers, ed. Beauchamp and von Foerster, Wiley and Sons, Inc., 1969, N.Y. PLUS TAPE OF MUSICAL EXAMPLES. (Read section on attacks beginning on p 53. Note critique of Clark and Luce 1965, above)
The Onset Behavior of Sound, Ch. III from Music, Sound and Sensation, Frintz Winkel, Dover T1764, paperback, pp 24-57
A Preliminary Experiment On the Perceptual Basis for Musical Instrument Families, Clark, Robertson and Luce, JAES 12 No. 3, Dec 1964, 199-203

III SPECTRUM: HARMONIC AND INHARMONIC PARTIALS

- The Ear as a Frequency Analyzer, R. Plomp, JASA 36 No. 9, Sept 1964, pp 1628-1636
The Ear as a Frequency Analyzer, II, R. Plomp and A.M. Mimpen, JASA 43 No. 4, April 1968, 764-767
Control of Consonance and Dissonance with Nonharmonic Overtones, Pierce and Mathews, from Music By Computers, Eds. von Foerster and Beauchamp, Wiley and Sons, 1969, NY 129-32 PLUS TAPE OF MUSICAL EXAMPLES
Synthesis of Wind Instrument Tones, Strong and Clark, JASA 41 No. 1, Jan 1967, 39-52
Perturbations of Synthetic Orchestral Wind-Instrument Tones, JASA 41 No. 2, Feb 1967, 277-285

Quality of Piano Tones, Fletcher, Blackham and Christensen, JASA 34 No. 6, June 1962, 749-61 PLUS TAPE OF EXAMPLES

Quality of Organ Tones, Fletcher, Blackham and Christensen, JASA 35 No. 3, Mar 1963, 314-325 PLUS TAPE OF EXAMPLES

Quality of Violin, Viola, Cello and Bass-Viol Tones, I, Fletcher, Blackham and Geertson, JASA 37 No. 5, May 1965, 851-863 PLUS TAPE OF EXAMPLES

Physical Correlates of Brass-Instrument Tones, Luce and Clark, JASA 42 No. 6, 1967, 1232-43

A Bell's Spectrum of Partial Tones, M. Grützmacher, Gravesaner Blätter, 127-128, PLUS TAPE OF EXAMPLES

Identifying Meaningless Tonal Complexes, Webster, Carpenter and Woodhead, JASA 44 No. 2, Feb 1968, 606-9

Effect of Harmonic Components on Frequency Discrimination, Henning and Grossberg, JASA 44 No. 5, 1968, 1386-89

IV. SPECTRUM: FORMANT, RESIDUE

- The Production of Speech, Ch. 7 pp 89-108 from Elements of Acoustic Phonetics, Peter Ladefoged, University of Chicago Press, 1962
A Psychoacoustic Comparison Between Vowel Quality and Musical Timbre, A. Wayne Slawson, Fifth Annual ICA Congress Report M66
Vowel Quality and Musical Timbre as Functions of Spectrum Envelope and Fundamental Frequency, A. W. Slawson, JASA 43 No. 1, 1968, 87-101
Perceptual and Physical Speace of Vowel Sounds, Pols, vander Kamp, and R. Plomp, JASA 46 No. 2 (part 2) 1969, 458-467
On the Perception of Sound and Speech, J. F. Schouten, 4th Int. Cong. of Acoustics Reports, 196-207
Realisation of Prosodic Features in Whispered Speech, W. Meyer-Eppler, JASA 29 No. 1, Jan 1957, 180-82
Pitch Ratings of Voiced and Whispered Vowels, G. J. Harbold, JASA 30 No. 7, 1958, 600-601
Perceived Pitch of Whispered Vowels, I.B. Thomas, JASA 46 No. 2 (part 2) 1969, 468-470
The Residue Revisited, J. F. Schouten, Symposium on Frequency Analysis and Periodicity Detection in Hearing, June 23-27, 1969, pp 1-16
Residual Tone and Formant Tone, Meyer-Eppler, Sendhoff and Rupprath, Gravesaner Blätter, 79-91 PLUS TAPE OF EXAMPLES
Computer Speech, TAPE ONLY OF EXAMPLES

V PHASE, LOUDNESS

- Effect of Phase on the Timbre of Complex Tones, Plomp and Steeneken, JASA 46 No. 2 (part 2) 1970, 409-421
Effects of Changes in the Phase Pattern Upon the Sound of a 16-Harmonic Tone, J.C.R. Licklider, JASA 29 p 780 Abstract
Perception of Music Heard via Interfering Paths, Schultz and Waters, JASA 36 No. 5, May 1964, 897-902
Psychophysics and the Measurement of Loudness, S. S. Stevens, ICA Reports 1968, 63-70
Critical Bandwidth and Loudness Summation, Zwicker, Flottorp and Stevens, JASA 29 No. 5, May 1957, 548-57
Loudness and Spectrum Shape, Bertram Scharf, JASA 34 No. 2, 1962, 228-233
Dependence of Timbre on Tonal Loudness Produced By

- Musical Instruments, Clark and Milner, JAES 12 No. 1, 1964
- Intensities of Orchestral Instrument Scales Play at Prescribed Dynamic Markings, Clark and Luce, JAES 13 No. 2, 1965
- The Relationship Between Fortissimo and Pianissimo, R. Vermeulen, Philips Techn. Review 2 No. 9, 1937, 266-269
- Hearing Loss and Audio Engineering, W. Dixon Ward, DB, May 1970, 20-3 and DB June 1970, 28-9
- Music As a Source of Acoustic Trauma, Lebo and Oliphant, JAES 17 No. 5, 1969, 535-8
- Noise, You Can Get Used To It, J.C. Webster and M. Lepor, JASA 45 No. 3, 1969, 751-7

VI MODULATION: BEATS: COMBINATION TONES

- Beats and Related Phenomena Resulting from the Simultaneous Sounding of Two Tones-I, E. G. Wever, Psychol. Rev. 36, 1929, 402-18
- Modulation: Vibrato and Beats, Ch. 9 pp 225-47, from Hearing, by Stevens and Davis
- Beats of Mistuned Consonances, R. Plomp, JASA 42 No. 2, 1967, 462-474
- Pitch of Frequency-Modulated Sinusoids, McClelland and Brandt, JASA 45 No. 6, 1969, 1489-97
- Quality of Violin Vibrato Tones, Fletcher and Sanders, JASA 41 No. 6, 1967, 1534-44 PLUS TAPE OF EXAMPLES
- Vibrato and Tremolo Reexamined, F. K. Harvey and D. J. MacLean, JAES 11, 66-7
- On the Discrimination of Frequency Transitions, Nabelek and Hirsh, JASA 45 No. 6, 1969, 1510-19
- Pitch of Tone Bursts of Changing Frequency, Nabelek, Nabelek and Hirsh, JASA 48 No. 2 (part 2) 1970, 536-53 536-53
- Detectability Threshold for Combination Tones, R. Plomp, JASA 37 No. 6, 1965, 1110-23
- Why are Summation Tones Less Audible Than Difference Tones?, J. F. Schouten, Adapted Abstract from "The Residue Revisited", IPO
- Chords, Trombone, Stuart Dempster. TAPE ONLY OF EXAMPLES

VII NOISE BANDS: RUSTLE NOISE ETC.

- Rustle Noise, J.F. Schouten and J. Dijk, IPO Internal Report, 1968? pp 31-35
- Pitch of Noise Bands, Small and Daniloff, JASA 41 No. 2, 1967, pp 506-512
- Use of Noise Bands to Establish Noise Pitch, Rainbolt and Schubert, JASA 43 No. 2, 1968, 316-323
- Auditory Masking of Multiple Tones by Random Noise, Schafer and Gales, JASA 21 No. 4, 1949, 392-398
- The Loudness of Bands of Noise, Irwin Pollack, JASA 24 No. 5, Sept. 1952, pp 533-538
- Perceptual Study of Vocal Fry, Hollien and Wendahl, JASA 43 No. 3, 1968, pp 506-509
- The Pitch of Tonal Masses, Ekdahl and Boring, Am. Jnl. of Psychol., 46, 1934, 452-455
- Geiger counter noise, filtered and unfiltered, TAPE ONLY

VIII SPATIAL ASPECTS: REVERBERATION: CHORIC EFFECT: VOLUME ETC.

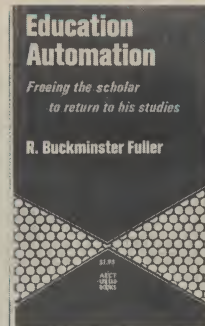
- Equal-Volume Judgements of Tones, Garth Thomas, Am. Jnl. of Psychol., 62, 1949, pp 182-201

- The Quantification of Tonal Volume, Terrace and Stevens, Am. Jnl. of Psychol. 75, 1962, 596-604
- Are Tones Spatial? S.S. Stevens, Am. Jnl. of Psychol. 46, 1934, 145-7
- Spatial Aspects of Hearing, G. Bekesy, from Experiments in Hearing, 312-13
- The Spatial Character of High and Low Tones, C. C. Pratt, Jnl. of Exp. Psychol. 13, 1930, 278-285
- Image Fusion, Broadening and Displacement in Sound Location, M.B. Gardner, JASA 46 No. 2 (part 2) 1969, 340-349
- Binaural Reception of Meaningful Material, R. Carhart, from Sensorineural Hearing Processes and Disorders, ed. A. Bruce Graham, Little Brown, Boston, 1967
- Phenomena of Localization, J.C.R. Locklider, from Sensorineural Hearing Processes etc., cited above. pp 123-127 with comments by others, pp 171-174
- Musical-Acoustic Vocabulary, L. L. Beranek, Sound 1 No. 4 22-26
- Initial-Time Delay-Gap, from Music, Sound Architecture, L.L. Beranek, pp 396, 398, 417-425
- Repetition Pitch and Its Implications for Hearing Theory, F.A. Bilsen, Acustica 22 No. 2, 1969/70, 63-73
- Several Problems in Musical Acoustics, Melville Clark, Jr., JAES 7 No. 1, 1959 (read section on choral tones)
- Preliminary Experiment on the Aural Significance of Parts of Tones of Orchestral Instruments and on Choral Tones, Clark, Luce et al, JAES 11 No. 1, 1963 (This paper is part of READINGS II; read only the section having to do with choral tones)

IX TIMBRAL ORGANIZATION AND STRUCTURE

- Ch. 7, Speech Perception; Ch. 8, Echoic Memory and Auditory Attention; Ch. 9, Active Verbal Memory. Cognitive Psychology, Ulric Neisser, pp 173-242. Appleton, Century, Crofts, 1967, New York
- The Magical Number Seven, Plus or Minus Two: Some Limits on Our Capacity for Processing Information, G.A. Miller, Psychol. Review 63 No. 2, Mar 1956, 81-97
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- Klangfarbenmelodie, A. Schoenberg, from Harmonielehre, pp 470-471, Leipzig-Wien 1911, Universal Edition
- Some Psychological Aspects of Pattern Recognition, Paul A. Kolers, from Recognizing Patterns, ed. Paul A. Kolers and Murray Eden, MIT Press 1964, -4 and 50-56. (Read for categories, pattern conception)
- Operations on Wave Forms, J.K. Randall, Perspectives of New Music, 5 No. 2, 1967, 134-40. PLUS TAPE OF EXAMPLES

The books by Fuller and Leonard deal more with an ultimate vision of what education can become, rather than with specific suggestions for today's classrooms.



I think that one of the important events of the educational revolution is the present realization that we are going to discover that the child is born comprehensively competent and co-ordinate and that it is capable of treating with large quantities of data and families of variables right from the start.

Our whole educational process, all the way up from the elementary school, is one of taking the child who has an innate comprehensive co-ordinate capability (not only to teach itself to walk but to be interested in the *heavens*) and give him differentiated parts — elements to work with. The prime patrons of the planetariums and the like are children, because they are spontaneously interested in the universe, that is, in the comprehensive rather than in the specialty — the elements. We get them to school, and we say forget the universe, and we give them A, B, and C. We go toward the very opposite of comprehensiveness. We go to the specialization right away. We render the children more and more specialized from elementary school onwards.

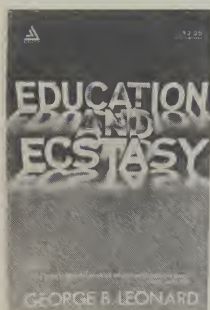
R. Buckminster Fuller, **EDUCATION AUTOMATION**
(Southern Illinois University Press, 1962)
88 pp, \$1.95

Anything that is static, forget it.
Work entirely toward the dynamic.

... the kind of examination procedure that our science foundations and other science leaders have developed is one in which they explore to discover whether this capable student is able to unlearn everything he has learned, because experience shows that that is what he is going to have to do if he is to become a front-rank scientist. The frontiers of science are such that almost every morning many of our hypotheses of yesterday are found inadequate or in error. So great is the frontier acceleration that now in a year of such events much of yesterday's conceptioning becomes obsolete.

Simultaneous curricula are obsolete.

Phrases like the College of Fine Arts really have no meaning any more.



George B. Leonard,
EDUCATION AND ECSTASY
(Dell Publishing Co., Inc., 1968)
239 pp, \$2.25

Competition became the chief ostensible motive force in Western mass education, as it seemed more and more to imitate the production line, with grades, honors and tests of all kinds gathering about them a power and glory all out of proportion to their quite limited function as learning aids. The departmental structure of U.S. higher education, with its proliferating disciplines breaking down into even more subdisciplines, may be looked upon as a model, if not a parody, of Civilization's final extreme. All of this is reasonably easy to view. It is slightly more difficult to realize how fast it is all passing away. Civilization, the period that began some 15,000 years ago, is over, though its aftereffects will linger for a long time to come. It ended when the man-made environment began to take on the characteristics of a natural ecology, that is, when it became interlocking, responsive and self-regenerating. All this has happened, if only in its crude beginnings, within the last few decades.

Not that the "product" of our educational system is not "capable." He comes out with "skills." He may be a usable component in the social machine. But he is just about finished as a learner.

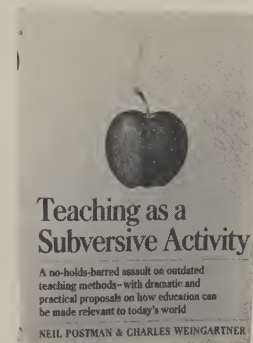
It may turn out that the contemporary artist is engaged in the business of ending Art, thereby helping us create an environment in which each individual life may be lived as a work of art.

"Right answers," specialization, standardization, narrow competition, eager acquisition, aggression, detachment from self. Without them, it has seemed the social machinery would break down. Do not call the schools cruel or unnatural for furthering what society has demanded. The reason we now need radical reform in education is that society's demands are changing radically. It is quite safe to say that the human characteristics now being inculcated will not work much longer. Already they are not only inappropriate, but destructive.

A world in which everyone will be in touch needs people in touch with themselves. Where the actions of one can drastically affect the lives of others far distant, it will be crucially important that each person master the skill of feeling what others feel. This skill, more than new lawn or new politics, will soon become crucial to the survival of the race.

The key to making such an environment work, we have found, is to resist becoming "teachers."

The books by Postman/Weingartner and Kohl contain many immediately-applicable suggestions and a great deal of articulate and devastating criticism.



Neil Postman & Charles Weingartner,
TEACHING AS A SUBVERSIVE ACTIVITY
(Delacorte Press, 1969) 219 pp, \$5.95

The ability to learn turns out to be a function of the extent to which one is capable of perception change.

Announce to the class that for the next two days, you will not permit them to make any utterances that are not in the form of questions. Then, present the class with some problem. Tell them that their task is to compile a list of questions, the answers to which might help in solving the problem.

Have you ever heard of a student indicating an interest in how a textbook writer arrived at his conclusions? Rarely, we would guess. Most students seem unaware that textbooks are written by human beings. Besides, the classroom structure does not suggest that the processes of inquiry are of any importance.

The new education, in sum, is new because it consists of having students use concepts most appropriate to the world in which we all must live. All of these concepts constitute the dynamics of the questing-questioning, meaning-making process that can be called "learning how to learn." This comprises a posture of stability from which to deal fruitfully with change. The purpose is to help all students develop built-in, shockproof crap detectors as basic equipment in their survival kits.

"The medium is the message" implies that the invention of a dichotomy between content and method is both naive and dangerous. *It implies that the critical content of any learning experience is the method or process through which the learning occurs.* Almost any sensible parent knows this, as does any effective top sergeant.

There is considerable evidence to indicate that people can become what others think they are.

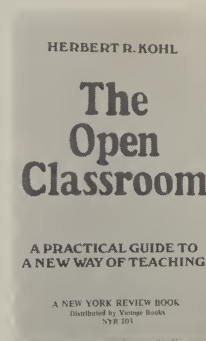
We must move beyond the competitive judging of one another's work and support one another, share experiences, and develop a community of teachers within the school who can relate to one another openly and honestly.

Teachers must develop a sense of what they look like to young people and understand how pointless and even funny it can seem to young people to see adults losing their cool over someone's refusal to take the division of fractions or the imagery in Act I of Macbeth seriously.

Survival in a given school is not always desirable or possible. There are times to quit or to be fired, to oppose, defy, and confront people. This section will be devoted to some ways of dealing with an authoritarian system.

Our schools are crazy. They do not serve the interests of adults, and they do not serve the interests of young people. They teach "objective" knowledge and its corollary, obedience to authority. They teach avoidance of conflict and obeisance to tradition in the guise of history. They teach equality and democracy while castrating students and controlling teachers. Most of all they teach people to pretend that they are saying what they think and feel. To try to break away from stupid schooling is no easy matter for teacher or student. It is a lonely and long fight to escape from believing that one needs to do what people say one should do and that one ought to be the person one is expected to be. Yet to make such an escape is a step toward beginning again and becoming the teachers we never knew we could be.

It is almost certain that open classrooms will not develop within our school systems without the teachers and pupils experiencing fear, depression, and panic. There will always be fear that one is wrong in letting people choose their own lives instead of legislating their roles in society. There will be depression, for one can never know in the short range if one is succeeding in opening possibilities to people or merely deceiving and seducing them. And there will be panic because we all fear chaos — fear that things have gotten so far out of hand in our lives that if we face the truth we will no longer be able to tolerate life.



Herbert R. Kohl, **THE OPEN CLASSROOM**
(A New York Review Book, 1969) 116 pp,
\$1.65

Bill Hull once said to me, "If we taught children to speak, they'd never learn."
I thought at first he was joking.

Holt begins with many lovely observations of children in learning situations, then occasionally uses those observations as a basis for generalizations of his own.

JOHN HOLT **HOW CHILDREN LEARN**

John Holt, **HOW CHILDREN LEARN**
(Pitman Publishing Corporation, 1967)
192 pp, \$2.25 (Also now in
Dell for 95c)

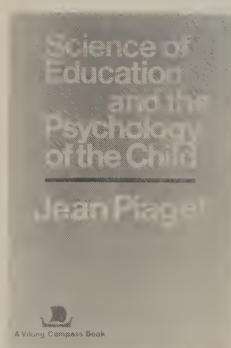
There is a special sense in which it may be fair to say that the child scientist is a less efficient thinker than the adult scientist. He is not as good at cutting out unnecessary and useless information, at simplifying the problem, at figuring out how to ask questions whose answers will give him the most information. Thus, a trained adult thinker, seeing a cello for the first time, would probably do in a few seconds what it takes a child much longer to do — bow each of the strings, to see what sounds they give, and then see what effect holding down a string with the left hand has on the sound made by that string. That is, if — and it is a very big if — he could bring himself to touch the cello at all. Where the young child, at least until his thinking has been spoiled by adults, has a great advantage is in situations — and many, even most real life situations are like this — where there is so much seemingly senseless data that it is impossible to tell what questions to ask. He is much better at taking in this kind of data; he is better able to tolerate its confusions, and he is much better at picking out the patterns, hearing the faint signal amid all the noise. Above all, he is much less likely than adults to make hard and fast conclusions on the basis of too little data, or having made such conclusions, to refuse to consider any new data that does not support them. And these are vital skills of thought which, in our hurry to get them thinking the way we do, we may well stunt or destroy in the process of "educating" him.

We think in terms of getting a skill first, and then finding useful and interesting things to do with it. The sensible way, the best way, is to start with something worth doing, and then, moved by a strong desire to do it, get whatever skills are needed.

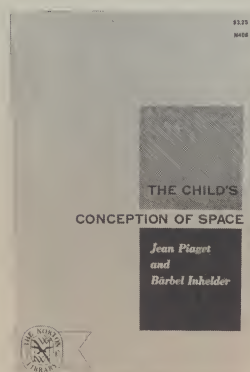
In other words, to use my own way of putting this, until their mental models of the world had enough pendula in them so that talk about pendula would mean something to them. This applies just as strongly to reading, or numbers, or arithmetic, or history, or geography, or language, as it does to science. Children need what we rarely give them in school — time for "Messing About" with reading — before they start trying to learn to read, to make the connections between letters and sounds.

Piaget's investigations into the learning process are at a level in some ways similar to that of those musicians who are attempting to integrate the exterior classes such as timbre, pitch, rhythm, and the like, with our faculties of perception, built-in biological responses, etc. He is attempting to build new structural foundations rooted in the constant inclusion of the developing human organism as a part of all considerations.

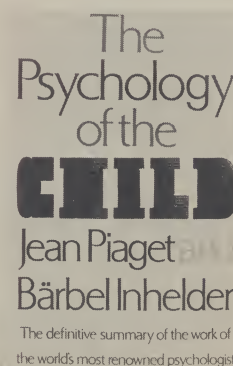
The book on the far left is a very readable, clear-headed (and international) overview of what has happened in education during the last thirty years. The other books will be difficult for many (at least they are for us). But what he is pursuing seems important and the way he goes about it can be fascinating. Even a limited knowledge can lead to some intriguing discussion and contemplation. (His output is very large, and there are also several condensations of his work available, many suddenly in paperback.)



Jean Piaget, **SCIENCE OF EDUCATION AND THE PSYCHOLOGY OF THE CHILD**, tr. Derek Coltman (Viking Press, Inc., 1969) 186 pp, \$1.95



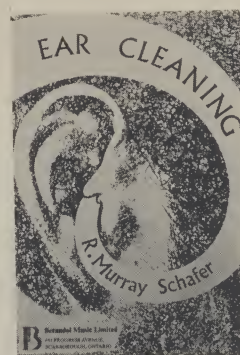
Jean Piaget and Barbel Inhelder, **THE CHILD'S CONCEPTION OF SPACE**, tr. F. J. Langdon & J. L. Lunzer (Norton & Co., 1948) 490 pp, \$3.25



Jean Piaget and Barbel Inhelder, **THE PSYCHOLOGY OF THE CHILD**, tr. Helen Weaver (Basic Books, Inc., 1969) 173 pp, \$5.95

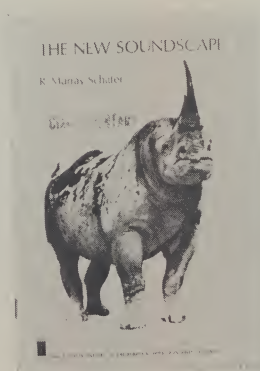
Silence is a container into which a musical event is placed. The tone, intruding on the darkness and oblivion of silence, cuts a light into it.

I felt my primary task in this course was to open ears. I have tried always to induce students to notice sounds they have never really listened to before, listen like mad to the sounds of their own environment and the sounds they themselves inject into their environment.



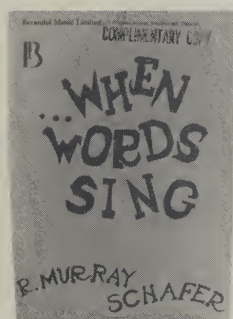
(\$2.00)

Schizophonic. It's a word I invented. Since the invention of electronic equipment for the transmission and storage of sound, any natural sound, no matter how tiny, can be blown up and shot around the world, or packaged on tape or record for the generations of the future. We have split the sound from the makers of the sound.



(\$2.50)

Overheard in the lobby after the premiere of Beethoven's *Fifth*: "Yes, but is it music?"
Overheard in the lobby after the premiere of Wagner's *Tristan*: "Yes, but is it music?"
Overheard in the lobby after the premiere of Stravinsky's *Sacre*: "Yes, but is it music?"
Overheard in the lobby after the premiere of Varese's *Poeme electronique*: "Yes, but is it music?"
A jet scrapes the sky over my head and I ask: "Yes, but is it music? Perhaps the pilot has mistaken his profession?"

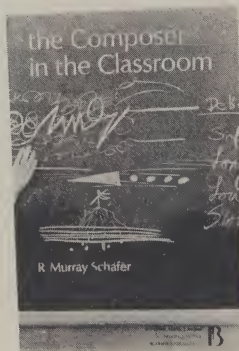


(\$2.50)

A *texture* may be said to consist of countless inscrutable *gestures*.

I often give a class this problem:
You have one note. Make up a composition with it. All I ask is that you don't bore me.
In the course of seeking ways to keep their one-note compositions interesting, they discover rhythmic articulations, changes of tone-color and dynamics, the functions of rests, echo effects — any number of fundamental music principles.

Listening to music properly will help bring out the uniqueness in you.



(\$2.00)

I've often wondered whether it is possible at all to disassociate music from human beings and see it clinically, that is, in its pure form.

We tend to associate certain kinds of art with certain people or groups of people and this undoubtedly affects our appreciation.

It is the duty of every composer to be concerned with the creative ability of young people. But he has to be quick to catch it.

These are meant mainly as guides to music teachers. They are full of nice little images and open-ended techniques. They are available from:

(U.S.)
Associated Music Publishers, Inc.
609 Fifth Avenue
New York, New York 10017

(Canada)
BMI Canada Limited
41 Valleybrook Drive
Don Mills, Ontario

(The prices given are for the United States.)



Telling lies to the young is wrong.
 Proving to them that lies are true is wrong.
 Telling them that God's in his heaven
 and all's well with the world is wrong.
 The young know what you mean. The young are people.
 Tell them the difficulties can't be counted,
 and let them see not only what will be
 but see with clarity these present times.
 Say obstacles exist they must encounter
 sorrow happens, hardship happens.
 The hell with it. Who never knew
 the price of happiness will not be happy.
 Forgive no error you recognize,
 it will repeat itself, increase,
 and afterwards our pupils
 will not forgive in us what we forgave.

Yevgeny Yevtushenko

It is often said that ethics is a thing which it is impossible to teach.
 Just the opposite is true — it is impossible *not* to teach ethics,
 whether consciously or not, being essentially involved
 in the teacher's philosophy of human nature.
 Cassius Jackson Keyser



Now I try my best to be just like I am,
 But everybody wants you to be just like them.
 Bob Dylan